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of Vocational-Technical Schools.

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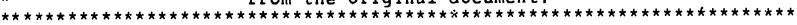
Behavioral Objectives; *Building Trades; Course DESCRIPTORS

Content; Course Descriptions; High Schools; Industrial Arts; *Job Performance; Job Skills; *Masonry; Recordkeeping; Safety; *School Shops; Secondary Education; Student Evaluation; *Student Records; *Trade and Industrial Education

ABSTRACT

Intended to reduce unnecessary paper work on the part of the shop instructor in a masonry course, this job assignment book offers a simplified method of keeping student records up-to-date. It lists theory objectives and specific objectives for masonry courses in grades 10, 11, and 12. To help the instructor in planning and organizing in advance, a theory outline is offered that covers 19 topics, including introduction, occupational safety, masonry materials, masonry tools, layout, masonry walls, bonds and patterns, solar construction, reinforced masonry construction, arch construction, fireplace construction, masonry estimating, lintel and beam installation, door and window frames, repair and maintenance, and customer relations. Space is provided for each topic to indicate lesson plan number and dates scheduled, presented, and tested. Other contents include instructions for recording student progress on the shop progress records; a record/form with areas for student name, tool check number, locker number, and text number, and grades; and shop progress records. The shop progress records identify the operations/skills that the student in a masonry course is expected to learn and provide a space in which the instructor records student progress as (1) instructed, (2) practiced, or (3) proficient. (ATB)

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MASONRY DIVISION OF VOCATIONAL-TECHNICAL SCHOOLS

Prepared for

Connecticut State Department of Education
Division of Vocational and Adult Education
Bureau of Vocational Program Planning and Development
Hartford, Connecticut 06115

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Act of 1976, Public-Law 94-482.



MASONRY

Progress Record, Theory Outline

SCHOOL _____

SHOP	·		
INSTRUCTOR		YEAR	GRADE

CONNECTICUT STATE DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL TECHNICAL SCHOOLS
HARTFORD, CONNECTICUT





PREFACE

The objective of this Job Assignment Book is to reduce unnecessary paper work on the part of the shop instructor.

This Job Assignment Book will simplify the instructor's task of keeping student records up-to-date.

In shops doing production work, it is necessary to devise flexible daily lesson plans well in advance. This Job Assignment Book will help the instructor in planning and organizing considerably in advance, thereby increasing his/her instructional efficiency.

Please note that the book is not designed simply for planning. It has areas for locker, text assignments, notes, grades, shop progress records, daily attendance, etc.

Students' names are entered only once for the entire course.



THEORY OBJECTIVES

- 1. To provide the student with current related technical information.
- 2. To provide the student with the information necessary to perform jobs in an orderly and organized manner.
- 3. To provide the students with the information which will enable them to make correct judgments as related to solving job problems.
- 4. To provide the student with the information that is necessary to achieve desirable work habits, self-confidence and motivation.



MASONRY COURSE SPECIFIC OBJECTIVES

Upon completion of each grade level the student should be able to:

GRADE 10

- 1. Be safety conscious and use safe work practices at all times.
- 2. List and identify the most often used tools of the masonry trade.
- 3. Use the essential measuring tools of the masonry trade.
- 4. Mix and spread mortar.
- 5. Lay brick to a line.
- 6. Build shop projects in a workship like manner.

GRADE 11

- 1. Be safety conscious and use safe work practices at all times.
- 2. Lay brick and block true to a line and accurately plumb, level and range masonry projects.
- 3. Maintain accurate heights while building leads.
- 4. Understand and apply basic theory related to the masonry trade.
- 5. Perform manipulative skills common to the masonry trade.
- 6. Build at least four types of arches.

GRADE 12

- 1. Be safety conscious and use safe work practices at all times.
- 2. Understand and apply basic theory ralated to the masonry trade.
- 3. Be able to solve job problems relating to masonry principles and materials.
- 4. Interpret and use working drawings to layout masonry work.
- 5. Build a complete fireplace.
- 6. Estimate material quantities and labor costs for small jobs.



MASONRY THEORY INDEX

- I. Introduction
- II. Occupational Safety
- III. Masonry Materials
- IV. Masonry Tools
- V. Layout
- VI. Masonry Wall Construction
- VII. Bonds and Patterns
- VIII. Solar Construction
 - IX. Reinforced Masonry Construction
 - X. Arch Construction
 - XI. Fireplace Construction
- XII. Outdoor Bar-B-Que Construction
- XIII. Heatilator Construction and Installation
- XIV. Masonry Estimating and Shop Blue Print Reading
- XV. Lintel and Beam Installation
- XVI. Door and Window Frames
- XVII. Repair and Maintenance
- XVIII. Miscellaneous Assignments



LESSON PLAN NO. DATE SCHEDULED DATE PRESENTED

1. INTRODUCTION

- 1. Orientation
 - a. Shop Rules
 - b. Shop facility
 - c. Shop equipment
 - d. History of trade
 - e. Trade
- 2. Opportunities
 - a. Working for union contractors
 - b. Working for non-union (open shop) contractors
 - c. Self-employed

II. OCCUPATIONAL SAFETY

- 1. Safety Precautions
 - a. Safe working conditions
 - b. Unsafe conditions
 - c. Unsafe acts
- 2. Safety Laws
 - a. Employees responsibilities
 - b. Employers responsibilities
- 3. Protective Clothing and Equipment
 - a. Shoes
 - b. Hats
 - c. Eye protection
 - d. Hearing protection
 - e. Respirators
- 4. Working, walking and climbing surfaces
 - a. Stairs
 - b. Ramps
 - c. Ladders
 - d. Staging and Protective Rails
 - e. General housecleaning
 - f. Lifting and carrying
 - g. Color Coding
 - h. Fires
 - i. Work station



III. MASONRY MATERIALS

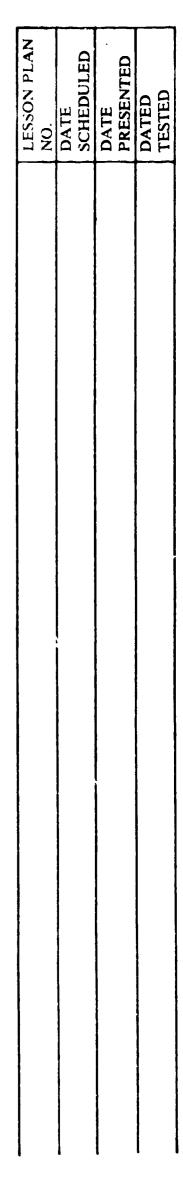
- 1. Construction Procedures and Application
 - a. Brick
 - b. Concrete Masonry Units (specials)
 - c. Block
 - d. Glazed Tile
 - e. Glass Block
 - f. Stone
 - 1. cut stone
 - 2. field stone
 - 3. decorating stone
 - 4. slate
 - g. Ceramic tile
 - h. Plastering materials
 - i. Concrete

IV. MASONRY TOOLS

- A. Trowels
- B. Hammers
- C. Chisels
- D. Sets
- E. Rules spacing and modular
- F. Lines
- G. Corner blocks line pins trigs
- H. Levels
- I. Story poles
- J. Jointers flat, round, rakers

V. LAYOUT

- A. Ruler and tape reading
- B. Squaring
- C. Leveling
- D. Builders Level
- E. Bench Marks
 - 1. Heights
- F. Bording
- G.Stery Pole
 - 1. Making
 - 2. Using





VI.MASONRY WALL Construction

- A. Solid Brick
- B. Concrete Masonry Units
- C. Composite Wall
- D. Cavity Wall
- E. Load Bearing Wall
- F. Partitions
- G. Construction Procedures

VII. BONDS AND PATTERNS

- A. History and Origin
- B. Various bonds
- C. Uses and applications
- D. Patterns and desings

VIII. SOLAR CONSTRUCTION

- A. Heating
- B. Cooling
- C. Insulation
- D. Principles of Convection and Radiation
- E. Trombe Wall
- F. Concrete Eall
- G. Fireplace Chimney Heat Sink
- H. Shapes and Colors of Masonry Units
- I. Tile, Concrete and Brick Floors
- J. Orientation to the sun
- K. Above Grade Building
- L. Berm Construction
- M. Subterranean Construction

IX. REINFORCED MASONRY Construction

- A. Materials
 - 1. Steel
 - 2. Brick Concrete Masonry Units
 - 3. Martar
 - 4. Grout



LESSON PLAN NO. DATE SCHEDULED

DATED TESTED

LESSON PLAN NO. DATE SCHEDULED IX. REINFORCED MASONRY Construction (continued) B. Placement of Reinforcement C. Construction Procedures 1. Low Lift Grouting a. Brick b. Block X. ARCH CONSTRUCTION A. History B. Parts and dimensions C. Layout arch centers D. Segmental arch construction E. Jack arch construction F. Gothic arch construction G. Elliptical arch construction H. Construction Procedures and trade practices 1. Layout arch ring 2. Cutting units for arches 3. Aligning 4. Bonding patterns 5. Building, placing and removing arch centers XI. FIREPLACE CONSTRUCTION A. History B. Types C. Safety 1. State and local building codes D. Planning and layout 1. Height 2. Width 3. Depth 4. Function E. Hearth 1. Length-2. Width



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LESSON PLAN NO. DATE SCHEDULED DATE PRESENTED

XI. FIREPLACE CONSTRUCTION (Continued)

- F. Function
 - 1. Size
 - 2. Width
 - 3. Style
 - a. poker control
 - b. rotary control
 - c. multi-opening
- G. Smoke Shelf
 - 1. Minimum depth
 - 2. Function
- H. Smoke Chamber
 - 1. Pargeting
 - 2. Float smooth
 - 3. Function
- I. FLUE LININGS
 - 1. Correct size
 - 2. Proper location
 - 3. Proper installation
- J. Lintels
 - 1. Length
 - 2. Thickness
 - 3. Function
- K. Throat
 - 1. Location
 - 2. Function
- L. Ash Dump
 - 1. Location
 - 2. Size
 - 3. Function
- M. Ash Pits
 - 1. Location
 - 2. Function
 - 3. Partitions
- N. Clean Out Doors
 - 1. Location
 - 2. Size
 - 3. Function



	LESSON PLAN NO.	DATE SCHEDULED	DATE RESENTED	DATED TESTED
XI.FIREPLACE CONSTRUCTION (Continued)				
O. Mantels				
1. Wood				
2. Brick				
3. Stone				
XII. OUT DOOR BAR-B-QUE CONSTRUCTION				
A. Types				
B.Plans				
1. Fire Box				
2. Grills				
3. Foundation				
4. Chimneys				
XIII. HEATILATOR CONSTRUCTION AND INSTALLATION				
A. History				
B. Planning				
C. Economy				i
D. Insulation				
E. Air Circulation			i	
1. Air Intake				
2. Warm Air Exhaust				
A. Hearth		1		
B. Exhaust 1. Intake			Ī	
2. Exhaust				
A. Flue Size				
XIV. MASONRY ESTIMATING AND SHOP BLUE PRINT READING				
A. Working Drawings				
1. Sections				
2. Elevations				
3. Plans				
4. Details 5. Scales			İ	
B. Estimating Materials			1	
1. Square Foot Method			1	
2. Linear Foot Method				
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XIV. MASONRY ESTIMATING (Continued)

- C. Estimating Labor Costs
 - 1. Unit Price
 - 2. Units Per Day
- D. Estimating Equipment Costs
 - 1. Forklift rental
 - 2. Staging rental
- E. Payroll, Taxes, Insurance and Profit

XV. LINTEL AND BEAM INSTALLATION

- A. Steel
 - 1. Length (Bearing)
 - 2. Strength
 - a. Back to Back
 - b. Welded
 - c. Thickness
- B. Reinforced Concrete
 - 1. Precast
 - 2. Cast in Place
- C. Steel Beams
 - 1. Welded Wide Flange
 - 2. Channel Iron

XVI. DOOR AND WINDOW FRAMES

- A. Door Frame
 - 1. Steel
 - 2. Flush
 - 3. Wrap Around
 - 4. Spreaders
 - 5. Assembly
 - 6. Masonry Opening
- B. Window Frames
 - 1. Steel
 - 2. Aluminum
 - 3. Wood
 - 4. Masonry Opening
 - 5. Lintel Placement



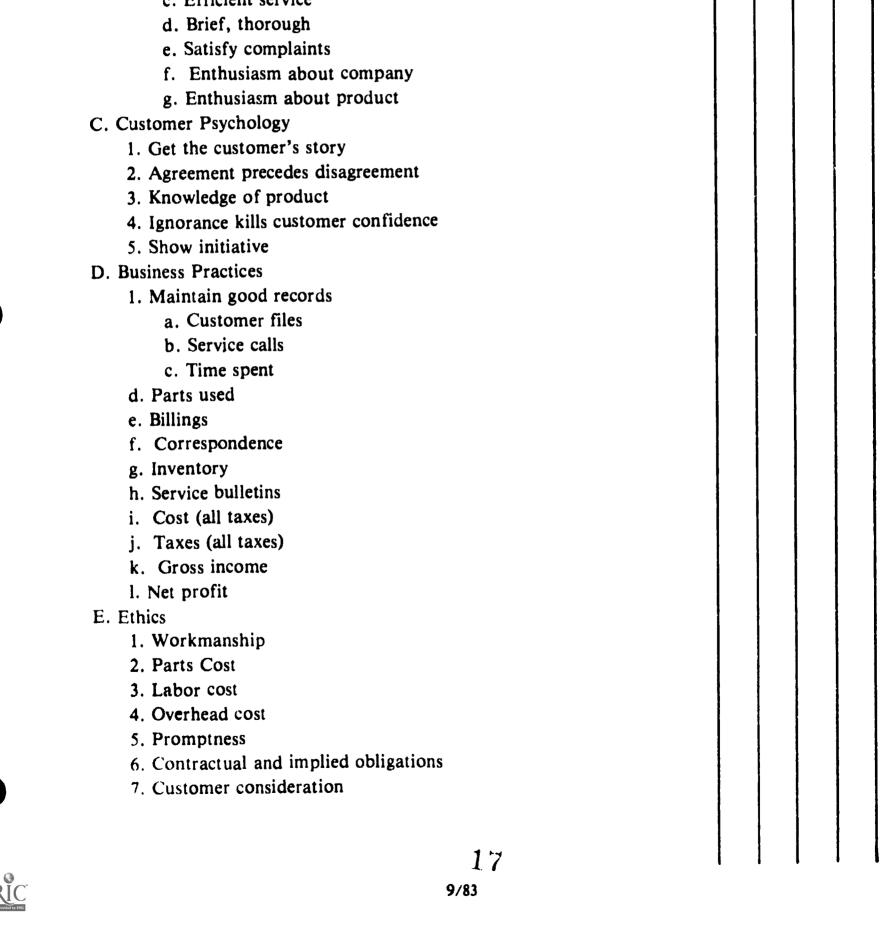
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	LESSON PLAN	DATE SCHEDULED	DATE PRESENTED	DATED TESTED	
XVII. REPAIR AND MAINTENANCE		<u> </u>			1
 A. Pointing B. Bonding Agents C. Caulking D. Water Proofing E. Hydraulic Cement 					
XVIII. MISCELLANEOUS ASSIGNMENTS					
 A. Plastering B. Stucco C. Pre-stressed Concrete D. Cleaning D. Pargeting F. Wall ties and Dur-A-Wall 					
XIX. CUSTOMER RELATIONS AND BUSINESS PRACTICES					
 A. Dress and Appearance - First Impressions 1. Clothing a. Neat b. Clean 2. Personal Appearance a. Cleanliness b. Personal hygiene c. Manners 1. Polite 2. Tactful 					
B. Courtesy to the Customer 1. Telephone Communication a. Courteous b. Sincere c. Listen d. Never argue but stand on facts e. Misuderstanding produces ill will					
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XIX. CUSTOMER RELATIONS (Continued)

- 2. Association in Person
 - a. Call customer by name
 - b. Pronounce name correctly
 - c. Efficient service



LESSON PLAN NO.
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SCHEDULED



RECORDING STUDENT PROGRESS

A major principle of vocational education is that the students learn skills or the performance of operations of a trade with the production job as a vehicle to accomplish this objective.

The operations are defined on the shop progress record and it is imperative that the instructor have some means of recording the student experiences and achievement.

The approved method of recording student progress is as follows:

Instructed -	This designation on the progress record
	indicates that the student has performed a
	skill with the assistance of and under the
	supervision of the instructor.

Practiced ·	This designation on the progress records indicates that the student has performed a
	skill either by himself or with little help
	from the instructor.

Proficient. This designation on the progress record indicates that the student is capable of performing a skill by himself within a reasonable amount of time with no assistance from the instructor. In effect this implies that the student has been tested for the skill.

This method of noting student progress will define accurately student achievement and in fact will point out any weaknesses the student may have in certain operations; thus highlighting areas where the student may need help.

Grades should be kept on student daily progress cards or in roll books.



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BONDS & PATTERNS

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	FINISH													
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STONE **Build Quain Corner Build Belt Course** Lay blue stone Lay field stene Ley cut stone Clean stone Lay state

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REPAIR AND MAINTENANCE								MISCELLANEOUS ASSIGNMENTS								
Point	Apply bonding agents	Caulk	Apply waterproofing	Use hydraulic cement			Plaster	Stucco	Wash down	Parge	Install Wall-Ties	Install Dur-A-Wall				
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	Install Heatilator	Install Insulation	Build Air Tunnels	Install Fans	Build Throat				Cut openings	Install door frame	Install window frame	Install lintels			
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		COMP	OSITE	WALL	S				00	TDOOR	BAR-	B-QUE		
Lay brick and block	Lay brick and stone	Lay block and stone	Lay brick and glazes tile	install Dur-A-Wall	Install Wall-Ties					Layout and Design	install Grills			
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Layout and Design	Install clean-out doors	install Thimble	Install Concrete Cap	Install Flashing	Install Flue Liner					Use Wet Blade	Use Dry Blade			
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FIREPLACES

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Layout	Build Ash Pit	Build Ash Dump	Build Firebox Floor	Build Firebox	Build Hearth	Build Smoke Shelf	Build Smoke Chamber	Build Clean-out Doors	Build Flue Liners	Build Face	Install Thimble			
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